



moffatt & nichol

Lutak Dock Design and Development Concept

HAINES BOROUGH | SEPTEMBER 2, 2016



LUTAK DOCK DESIGN AND DEVELOPMENT CONCEPTS

HAINES BOROUGH, ALASKA

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LETTER OF TRANSMITTAL

Mr. Brad Ryan, Director of Public Facilities
Haines Borough
Borough Clerk's Office
103 Third Ave. S
Haines, AK 99827

REFERENCE: PROPOSAL
LUTAK DOCK DESIGN AND DEVELOPMENT CONCEPTS

Dear Mr. Ryan:

Moffatt & Nichol (M&N), in cooperation with a highly qualified team of professionals with established working relationships from past projects (M&N Team), is pleased to submit our qualifications to execute a detailed alternatives analysis for the renovation, replacement, or modification of the Haines Borough Lutak Dock.

The M&N Team will work closely with the Haines Borough (Borough) throughout the project and will solicit input from stakeholders ranging from end-users to the public-at-large. The analysis will consider factors ranging from cost and schedule concerns, to lifecycle and suitability of future expansion. Ultimately, three design alternatives, defined to a roughly 35-percent level of design development will be provided for consideration by the Borough and various stakeholders; each with a supporting budget-level construction cost estimate.

By selecting the M&N Team, the Borough will receive fully-explored conceptual alternatives for the refurbishment or replacement of the Lutak Dock; concepts that are:

- ▶ **Achievable, Safe and Sustainable** – Under the direction of our lead engineer and project manager, Paul Wallis, M&N's concepts will result in a project constructible within desirable budgetary goals. The design will safely resist deterioration from natural and occupant loading which the existing facility is no longer capable of. The new dock will provide secure, reliable, low-maintenance service over its decades-long service life.
- ▶ **Sensitive to Stakeholder Needs and Concerns** – M&N will lead the technical development of these design alternatives with spirit of input and collaboration from and between participating project stakeholders. We will proactively engage in an open and honest dialogue with the Borough and the public-at-large, facilitated by our Principal-in Charge, Shaun McFarlane. Shaun is an experienced facilitator and has worked in the past on repairs to the Lutak Dock.
- ▶ **Delivered within Budgeted Cost and Schedule** – Applying expert, in-house, heavy civil marine expertise, combined with the right team of Alaskan geotechnical and construction experts, M&N will deliver our concepts within the budgeted cost and schedule. Our project manager Paul Wallis will be the primary point of contact for the Borough, serving as liaison between the Borough and all project team members. He will be responsible for adherence to the project schedule and all levels of change management, and will lead inter-team communications.

The M&N Team has the collective experience with the Borough and the knowledge and history of Lutak Dock to deliver these important concepts that will serve as the basis for *the right design*: one that will be at once *safe, sustainable, affordable, and meet the Borough's needs*.

M&N takes pride in our waterfront planning and engineering services and on partnerships earned with our clients: through listening to their needs, and then providing the right approach, and the right solution, at the right time. *We are committed to working tirelessly to serve the Borough on this important project, with the goal of partnering with you in its present and future success.*

We appreciate the opportunity to offer our services and look forward to the next step in your selection process. Please contact our office at your convenience should you have any questions concerning our Proposal.

Sincerely,

MOFFATT & NICHOL

A handwritten signature in blue ink, appearing to read 'Paul Wallis', with a stylized, flowing script.

Paul Wallis, PE, SE
Project Manager

A handwritten signature in blue ink, appearing to read 'Shaun McFarlane', with a stylized, flowing script.

Shaun McFarlane, PE
Vice President, Principal-in-Charge

1. FIRM'S OVERALL QUALIFICATIONS AND EXPERIENCE

Alaskan Branch, Staffed by Alaskans



M&N's Anchorage office was established in 2012 specifically to serve Alaskan waterfront projects and is located at:

880 H Street, Suite 208, Anchorage, Alaska 99501

Led by Shaun McFarlane, a long-time Anchorage resident, our Anchorage staff is familiar and experienced working throughout Southeast Alaska and available to assist with all manner of future tasks that might arise.

M&N is ideally positioned in Anchorage to facilitate close communication with, and quick response to the Borough on this project.

Overseeing the project development, longtime Alaskan and Anchorage Manager Shaun McFarlane will serve in the role of Principal-in-Charge (PIC). In this role, he will provide feedback at key project benchmarks, and will help maintain the team's schedule and budget. Shaun is a registered professional engineer in Alaska, and has participated in past project work on the Haines Lutak Dock. His familiarity with the facility and site will prepare him to provide background and support the conceptual development.

A graduate of both North Pole High School and the University of Alaska, Fairbanks, and a 6th Infantry Division (L) alumnus of Ft. Wainwright, Alaska, project engineering lead Project Manager Paul Wallis is a registered Structural Engineer (SE) in the State of Alaska. He has designed and evaluated a number of important marine facilities across Southeast Alaska and the Aleutians. In addition, Mr. Wallis has been periodically involved in discussions regarding the future of the existing Lutak Dock for nearly two years. This has fostered a working familiarity with the existing facility, including technical documentation pertaining to recent inspections and past upgrades.

Paul will be supported by Charles Balzarini, a lifelong Alaskan who graduated from both Chugiak High School and the University of Alaska, Anchorage. Charles is a registered Civil Engineer (PE) in the State of Alaska, and a recently certified commercial diver with experience in dive inspection Southeast Alaskan waters. Charles has been involved in the design and construction of many marine projects including award-winning project work in Southeast Alaska, and has the technical background to help bring the alternatives analysis to a successful conclusion.

MOFFATT & NICHOL | PRIME CONSULTANT



Applicable Licenses

Our team has the licenses and expertise to complete this project. Our Project Manager, Paul Wallis, is a registered civil and structural engineer in the State of Alaska. Our corporate office is licensed in Long Beach, CA (BU20626730) and we also have a business license in the state of Alaska (945528).

Key Factors for Success

- **Locality.** An Alaskan-led and managed project team with a strong track record for delivering projects in Haines.
- **Expertise.** A portfolio of successfully planned, constructed and operated maritime transportation support facilities.
- **History.** Since 1945, M&N has specialized in two overarching markets: the environment where land and water come together; and the infrastructure needed for goods movement.



Brief History of the Firm

Since 1979, Moffatt & Nichol (M&N) has provided structural engineering and inspection services in Alaska for Municipal, State, Federal and private clients. Founded in 1945, M&N has grown steadily to expand its state-of-the-art coastal and waterfront engineering services to include dedicated structural engineering services. *Today, the firm has grown to approximately 650 employees in 35 offices around the world, including our office in Anchorage, and in 2014 was ranked #2 nationwide for "Port and Marine Facility Design" by Engineering News-Record, among competing firms reporting tens of thousands of professionals.*

With active Urban Waterfronts and Marinas (UWM) and Inspection and Rehabilitation (I&R) practices in Anchorage, Seattle and supporting West Coast offices, M&N is an active participant and supporter of the Alaska Association of Harbormasters and Port Administrators (AAHPA), the Southeast Conference, and the Pacific Coast Congress of Harbormasters and Port Managers (PCC). We offer many years of experience addressing the unique challenges of commercial, recreational and mixed use harbors throughout Southeast Alaska. Our talented team of design professionals is committed to executing this project to your satisfaction, upholding our reputation as leading marine facility designers.

SUBCONSULTANTS

Turnagain Marine Construction | Constructability



Turnagain
Marine Construction

Turnagain Marine Construction (TMC) is a heavy marine construction company based in Anchorage, Alaska. TMC began operations in 2014 but is hardly new to the Alaska construction environment: their management has constructed more than \$150 Million in successful Alaskan projects from Ketchikan to Nome. TMC is equipped to perform

complex marine construction projects that include large diameter socketing, rock anchors, and heavy lift requirements. The company provides a unique cross-section of skills required to successfully delivery logistically challenging projects. Jason Davis, President of TMC, has an especially in-depth knowledge of the construction of marine structures. His experience enables successful delivery of time- and environmentally-sensitive projects in a safe, efficient, and responsible manner.

Shannon & Wilson | Geotechnical Engineering



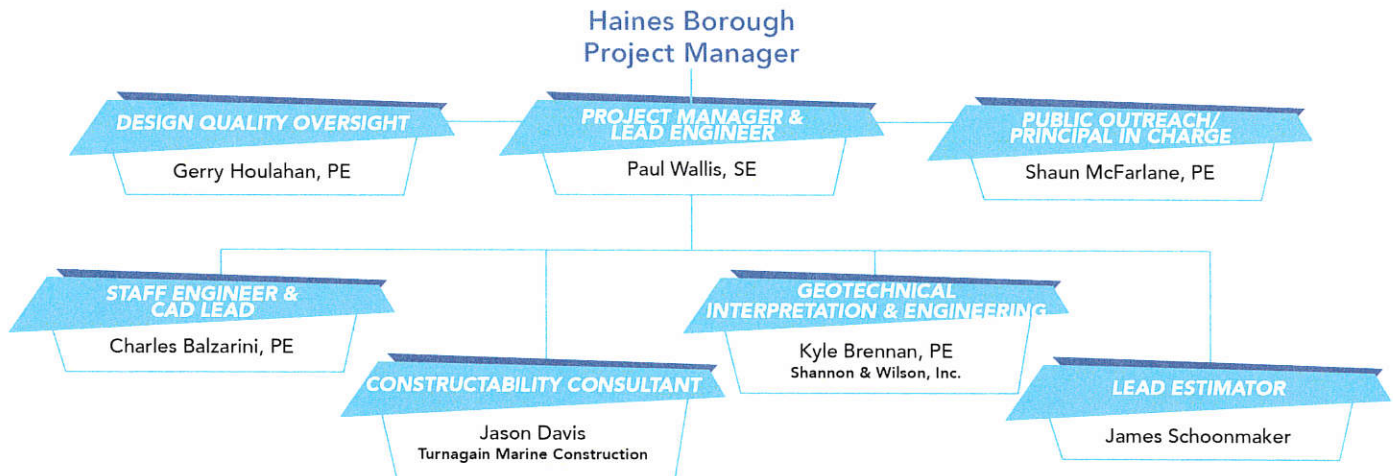
SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

Shannon & Wilson (S&W) was founded in 1954 as a geotechnical engineering firm. Kyle Brennan, our Geotechnical Lead from

Shannon Wilson, has first-hand experience from the project area through his work in 2002-03 at the Lutak Dock. Kyle developed and oversaw a geotechnical exploration programs, conducted engineering analysis, and provided design-level geotechnical engineering recommendations for improvements to the aging cellular cofferdam structure at the site. Kyle has provided similar geotechnical engineering and project management for many waterfront development projects including the Icy Strait Point Cruise Ship Terminal in Hoonah, the Gary Paxton Industrial Park Multi-Use Dock in Sitka, the American Seafoods Dock and Cold Storage Facility in Unalaska, and the US Coast Guard Fast Response Cutter facility in Ketchikan. With the exception of the Hoonah project which used existing subsurface information, each of these projects consisted of a combination of on and off-shore explorations and engineering analysis for soil and/or rock embedded, pile supported, offshore structures. Kyle has also provided similar services for many harbor improvement projects in the communities of King Cove, Akutan, Old Harbor, where he developed pile foundation design recommendations for new mooring slips and other structures. Through his work on waterfront/development projects throughout the State of Alaska, Kyle is experienced in regional geologic conditions and can develop practical, innovative solutions for a wide range of geological conditions.

3. ORGANIZATIONAL CHART

A successful project is one that achieves the agreed-upon goals and objectives of an often diverse group of stakeholders, and the Lutak Dock is no exception. The project must be closely managed, communicated, and coordinated, both internally within the project team and externally with the Borough and its stakeholders. The following organizational chart illustrates how the M&N Team will work together to meet the Borough's needs.



PROJECT MANAGER

Paul Wallis, SE, brings nearly two decades of diversified experience in structural and marine engineering, presently specializing in the design and construction oversight of floats, piers, wharves, bulkheads, docks and trestles, for commercial trade, commercial fishing, recreational, and mixed-use ports and harbors. Paul has actively participated in many waterfront facility inspections and condition assessments throughout Alaska and managed all aspects of most of these projects. Project teams managed by Paul are typically comprised of multi-discipline design, permitting, mitigation, and environmental assessment professionals, and these projects often requiring construction cost estimating, bid document preparation and construction oversight. *As a seasoned design professional, Paul understands that it takes a collaborative team approach in order to identify, develop and implement successful design solutions.*

As Project Manager, Paul will coordinate and participate in the day-to-day planning and design activities for the Haines Lutak Dock alternatives analysis, and he will coordinate the work of project team task managers responsible for all technical specialties. The project will be directed from our Anchorage office and performed primarily by M&N professionals in Anchorage. Paul will be the primary point of contact for the Borough, serving as liaison between the Borough and all project team members. He will maintain and take responsibility for adherence to the project schedule, will be responsible for all levels of change management, and will serve as facilitator and lead for inter-team communications. *As an experienced project manager, Paul understands the necessity of blending the right technical and professional talent into the best team for the project.*

Paul's awareness of the day-to-day technical issues, through meaningful involvement in all facets of the project, combined with a growing understanding of stakeholder needs, will allow him to mold and shape the design solutions toward the desired conclusion. Paul's established working relationship with PIC Shaun McFarlane, and *his knowledge of recent project development – extending back nearly two years – makes him a powerful technical advocate for the Borough's long-range vision for the Haines Lutak Dock.*

PUBLIC OUTREACH / PRINCIPAL-IN-CHARGE

Shaun McFarlane, PE, brings 27 years of diversified experience in waterfront engineering specializing in the oversight of the development of all aspects of port and harbor analysis and design. Shaun has actively participated in many waterfront facility evaluations and assessments throughout Alaska and has assisted in the master planning of significant facilities for coastal communities including the Port of Anchorage, the City of Petersburg, and most recently the City of Ketchikan. As leader of M&N's Anchorage office, and an officer of the company, he has the authority to commit and bind the resources of the firm, assuring the Borough that *all committed resources will serve this project as a high priority*, and that Moffatt & Nichol's deep bench of technical and professional talent will be mobilized as needed.

Shaun knows that most successful projects are delivered in the context of teamwork, close collaboration and intentional, clear communication between the Owner, consulting team, local governance, environmental authorities, fabricators, contractors, local stakeholders and the public-at-large. *Shaun works collaboratively with his clients at all stages of the project, and excels in the public involvement process, leading to projects that deliver the features and elements the community needs.*

Competing agendas can make consensus and buy-in difficult to achieve, especially among diverse stakeholder groups. This can be exacerbated by sparse project funding and the consequent inability to afford everything end-users want. It is here that Shaun's formal training, certification and experience in value engineering come into play: assessing the highest priorities for the project; discussing and prioritizing needs with the Owner and select stakeholders; and then developing and managing cost-effective and affordable designs that address the facility's highest functional priorities. Shaun excels at surfacing, clarifying and reconciling competing stakeholder perspectives and agendas: *building consensus wherever possible; and clear understanding and acceptable compromise where it is unattainable.*

Shaun's public involvement skills and experience, will uniquely enable him to serve as *Facilitator for the project team* in stakeholders meetings, presentations and workshops for the Borough and the Public-at-large. As a trained and certified Value Engineering Associate with focused training in stakeholder reconciliation and consensus building, Shaun brings a history of working with and between owners, stakeholders and the public-at-large—often those with disparate interests and agendas—to develop consensus, agreement and a way forward: ostensibly, *"How do we get to YES?"* A long-time Alaska resident bringing over 15 years of project experience throughout Alaska and the Pacific Northwest, Shaun has developed a reputation for tireless commitment and exemplary client service. Projects with which he is associated are consistently delivered on time, within budget and to his clients' satisfaction. *Shaun will consider it a privilege to bring his strong public outreach and facilitation skills to bear on this important project.*

ROSTER OF KEY PERSONNEL

Following is a roster of key M&N Team personnel to acquaint you with our well-qualified team:

Name	Role	% Req./ % Avail.	Highest Degree	Registration/ Certifications	Experience
Paul Wallis, PE, SE (M&N)	Project Manager / Design Lead	30/70	BS	Professional Engineer: AK, ID, MN, SD, OR, WA Structural Engineer: AK, HI, ID, MN, ND	Project Management, Design Team Management, Structural, Seismic and High-Wind Design and Analysis
Shaun McFarlane, PE (M&N)	Public Outreach / PIC	40/60	ME	Professional Engineer: AK / BCI, AVE	Facility Planning/Layout, Waterfront/Structural, Construction Mgmt., Public Involvement
Gerry Houlahan, PE (M&N)	Design Quality Oversight	20/80	DCE	Professional Engineer: CA	Structural and Civil Engineering, QA/QC
Charles Balzarini, PE (M&N)	Staff Engineer & CAD Lead	35/65	BS	Professional Engineer: AK	CAD, Cost Estimating, Document Review, Inspections
Jason Davis (TMC)	Constructability Consultant	15/85	MS Eng.	N/A	15 years of Marine Construction Experience
Kyle Brennan (S&W)	Geotechnical Engineer	30/70	MS	Professional Engineer: AK	Geotechnical Interpretation
James Schoonmaker (M&N)	Lead Estimator	25/75	BS	N/A	Marine Construction Specialist

RESUMES

Additional detail is included in resumes for key project personnel, included in the Appendix.

2. PAST PERFORMANCE

HAINES BOROUGH PROJECTS

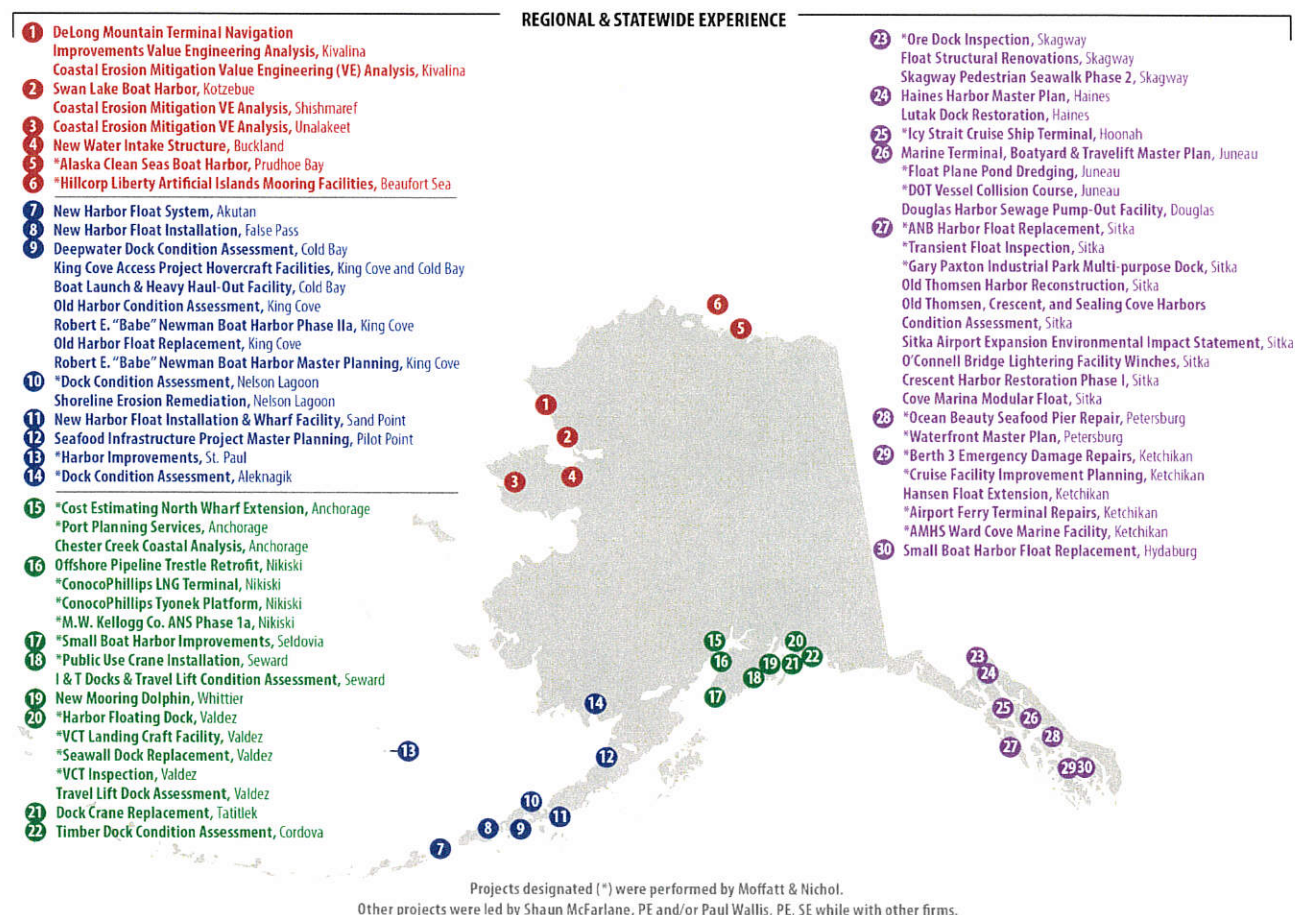
Paul Wallis was invited to participate in the Lutak Dock workshop which he attended at the Borough's request.

From December 3-4, 2014, a workshop was held in Haines, Alaska, to discuss the current condition, and future of the existing Lutak Dock. The workshop included attendees specifically invited by the Haines Borough, representing a cross section of professionals, regulators, community stakeholders and other interested parties. The workshop was executed in roundtable fashion, with both all-inclusive and breakout sessions of smaller groups. Included in the Appendix is a memorandum outlining M&N reflections and recommendations, issued at the request of the Borough Manager.

Shaun McFarlane was a lead waterfront design engineer and oversaw environmental permitting for the 2002 Lutak Dock Restoration which involved the repairs and dredging of the 1,100-ft long closed-cell deep water steel sheet pile bulkhead and RO/RO facility

Shannon & Wilson has worked on several projects for Haines Borough *including the 2002 Lutak Dock Rehabilitation project*, the ongoing Haines Ferry Terminal Lab Testing project, the 2009 Hawes Communication Tower project, and the Dalton Cache Housing project.

In addition to work in Haines, M&N and its Alaska professionals have worked on numerous waterfront projects throughout coastal Alaska, with significant Southeast Alaska experience (i.e., Haines, Hoonah, Hydaburg, Juneau/Douglas, Ketchikan, Petersburg, Sitka and Skagway). The graphic below combines historical M&N experience in coastal Alaska with that of Paul Wallis and Shaun McFarlane, both with M&N and for prior firms.



PERFORMANCE WITH SIMILAR COMMUNITIES AND PROJECTS

The M&N Team applies “lessons learned” on similar projects from Southeast Alaska and from projects across the United States and worldwide, where our planners and engineers have applied practical, creative solutions to satisfy the needs of our clients and their stakeholders. We have included some projects that have not yet entailed final design efforts, based on their relevance to the issues the M&N Team will encounter on the Lutak Dock project.

Gary Paxton Industrial Park Dock, Sitka, AK **OWNER:** City and Borough of Sitka, Alaska

M&N provided planning and conceptual development for the Sawmill Cove Industrial Park Deepwater Dock; now known as the Gary Paxton Industrial Park Dock. This critical initial stage of the project is analogous to planning a road trip to a destination of choice: There are often multiple routes with features varying depending on the road traveled. The destination itself must be well defined. The traveler, in planning the trip, must make value judgments: trading off schedule against cost, and considering the sometimes conflicting and difficult-to-accommodate interests of fellow travelers. Tasks for this design-build project include programming and project planning, alternatives analyses, RFP solicitation support, and technical oversight..

PROJECT PERFORMANCE

Meeting project deadlines	Planning/programming completed on schedule; design-build solicitation issued
Budget	Ongoing; work completed to date under budget
Quality	Ongoing; work completed to date satisfied client expectations
Customer satisfaction	CBS project manager requested M&N for next phase of work
Client References	Dan Tadic, Municipal Engineer, City and Borough of Sitka, dan.tadic@cityofsitka.org (907) 747-1807

Icy Strait Point Hoonah Berthing Facility, Hoonah, AK **OWNER:** Hoonah Totem Corporation

M&N, as part of a design-build team led by Turnagain Marine Construction (TMC), designed a cruise ship pier for Hoonah Cruise Ship Dock Co. The floating pier was completed in early 2016, and provides direct access to the upland amenities for passengers on more than 75 cruise ships visiting between May and September each year. This facility now accommodates the largest cruise ships in the Alaskan market and lets passengers walk into the Alaska port-of-call instead of tendering to shore in small vessels. M&N provided design and construction support services for the dolphins with socketed and rock anchored piling, floating pontoon, and trestle and transfer span with associated supports. M&N developed a very aggressive design and construction scheduling approach for TMC to immediately start marine construction once the permits are obtained. This facility improves the access for cruise ship passengers to the Icy Strait Point facility and provided additional ship call opportunity.

PROJECT PERFORMANCE

Meeting project deadlines	Our team’s fast-track schedule and design approach allowed construction to be completed and the facility to be operational for the 2016 cruise season.
Budget	The project was completed within budget.
Quality	M&N employed a rigorous and successful quality program.
Customer satisfaction	Julian Koerner, Project Manager for TMC wrote, <i>“Everything was well received and the owner is very happy with the facility and the quality of the final product.”</i>
Client References	Mark Keller, Duck Point Developments, MKeller@duckpointdev.com (206) 419-4080

Port Facility Improvements Planning and Design, Ketchikan, AK **OWNER:** City of Ketchikan

M&N is currently leading the planning, public input and design of improvements to Berths I, II and III cruise terminal facilities for the City of Ketchikan. The work entailed a detailed topside, under-pier and underwater inspection of existing facilities with prioritized recommendations for repair and rehabilitation; a market study assessing future trends in cruise vessels for Southeast Alaska; recommended capital improvements to berth and supporting uplands for the next 10-15 years; and the design, procurement and construction support of projects to be undertaken within this planning effort. The planning phase is approximately 75-percent complete, with a second public Workshop to be led by Shaun McFarlane scheduled for mid-September to present the market assessment results and gather public input to facility expansion and improvements to accommodate Breakaway Class cruise vessels. Under this contract to the City, M&N provided emergency structural and underwater inspection; identification, design and bidding of needed repairs; and construction oversight for the fast-track rehabilitation to Berth III.

PROJECT PERFORMANCE

Meeting project deadlines	The project is ongoing, the emergency repairs were completed on July 5, 2016; just 4 weeks after the June 2016 allision by the cruise ship Celebrity Infinity.
Budget	The project is ongoing. Emergency repairs were completed within budget
Quality	M&N is employing a rigorous and successful quality program.
Customer satisfaction	Steve Corporon, Ketchikan's Port Director recently wrote, <i>"I couldn't have pulled it off without good timely engineering support."</i>
Client references	Steve Corporon, Port & Harbors Director, stevec1@city.ketchikan.ak.us (907) 228-5632

Lutak Dock Restoration, Haines, AK **OWNER:** Haines Borough

Shaun McFarlane, while with a previous firm, was a waterfront design engineer and managed environmental permitting for repairs and dredging of the 1,100-foot-long deep water steel sheet pile bulkhead and roll-on and roll-off (RoRo) facility. The dock services container vessels and bulk material barges and was nearing the end of its service life. This project in 2003 sought to extend the life of the facility until such time as funding could be secured for its replacement. A few years following the repair of the Borough's section of the dock, the portion operated and maintained by ADOT&PF for the AMHS ferry—constructed at the same time—suffered a catastrophic localized failure requiring emergency repair.

PROJECT PERFORMANCE

Meeting project deadlines	Project completed on time
Budget	Project completed within established budget
Quality	No design-related construction change orders
Customer satisfaction	Satisfied client; repairs have maintained dock utility for 13 years to date
Client references	Robert Venables, Southeast Conference (former Haines City and Borough Manager), venables@aptalaska.net (907) 723-0177

Liberty Dock Development, Beaufort Sea, AK **OWNER:** Hilcorp

Located 15 miles east of Prudhoe Bay in Foggy Island Bay, the manmade Liberty Island will be located about six miles offshore in approximately twenty feet of water. The island will eventually serve as a production platform for the drilling, extraction and transmission of North Slope crude oil. Once online, the island will operate around the clock at varying levels of drilling and production. M&N provided engineering services to assist with the preliminary design of the Liberty Island. Our work included preliminary island layout and size evaluation, preliminary perimeter sheetpile enclosure wall design, preliminary sheetpile bulkhead dock design, and cost estimating support.

PROJECT PERFORMANCE

Meeting project deadlines	Phased project; in progress.
Budget	The project initial phase was completed within budget.
Quality	M&N is employing a rigorous and successful quality program.
Customer satisfaction	Peter Gadd of Coastal Frontiers, regarding design budget limitations overcome on early programming, wrote, <i>"You folks produced a lot for a meager budget. Great to establish a working relationship with you in the Arctic."</i>
Client references	Greg Heron, Coastal Frontiers, ghearon@coastalfrontiers.com (818) 341-8133

3. DRAFT SCOPE OF WORK

METHODOLOGY

With an established working relationship founded on past project experience, the Moffatt & Nichol team proposes to execute a detailed alternatives analysis for the renovation, replacement or modification of the Haines Lutak Dock; at the direction of the Haines Borough, and with input from stakeholders ranging from end-users to the public-at-large. Considered factors will range from cost and schedule concerns, to life cycle, utility/suitability, and future expansion, resulting in three (3) discrete design alternatives; defined to a roughly 35-percent level of design development. Supporting budgetary estimates of construction cost, commensurate with the conceptual level of the designs, will accompany the alternatives.

Based on these alternatives, *we are confident that the M&N Team will help the Borough establish a spirit of collaboration among your stakeholders and the community* as you confidently discern a way forward toward *the right design solution*.

Public Outreach

The success of any project is dependent on first capturing, then understanding, and finally capitalizing on the value of stakeholder input; which is essential to defining technical, non-technical and even intangible project concerns.

M&N will meet with designated representatives from the Borough, in Haines, to prepare for an initial public intake meeting. The purpose of the meeting will be twofold: (1) communicating the Borough's goals and objectives, by use of conceptual drawings, to project stakeholders and members of the public-at-large; and (2) gathering initial input and ideas on the future uses and needs of the Lutak Dock.

At the public intake meeting, written feedback will be solicited in an orderly and trackable fashion. Both online survey access and physical survey forms will be distributed to collect feedback. Verbal feedback provided at the intake meeting will be recorded in meeting minutes and reported with survey feedback in memorandum form.

M&N will meet separately with key individual stakeholders, as directed by the Borough, to gather focused input on planned operations and uses of the Lutak Dock. These may include, at the Borough's discretion: the Lutak Dock Advisory Board, current and prospective tenants, ADOT&PF (who operates the adjacent section of the dock for the AMHS ferry), other local businesses, and key environmental regulatory authorities.

At the conclusion of the initial public intake effort, M&N will meet with the Borough to debrief on the various intake meetings, prior to leaving Haines. *Our initial goal will be to process and prioritize the raw feedback received*. Once the above-referenced memorandum summarizing the public meeting is issued, M&N will facilitate a teleconference with the Borough to confirm the desired forward direction for the alternatives analysis.

Alternatives Analysis – General

It is a very rare occasion when a single, technically feasible and cost-effective concept, which best meets the needs of the majority of project stakeholders, immediately presents itself to a design team. Rather, in most instances, a

thorough analysis of all reasonable alternatives must first be undertaken in order to identify, develop and confirm the suitability of a final design solution.

The true value of an objective alternatives analysis is that it results in a menu or suite of discrete, buildable, economically feasible design solutions. To be of maximum utility to the overall planning process, *alternatives provided should carefully identify tangible stakeholder benefits, and also clearly articulate the associated constraints, for each design solution.* To this end, M&N proposes the following path to project success:

Alternatives Analysis – Detailed

M&N will develop design alternatives according to a two-tiered approach, as described below.

TIER 1: CONCEPTUAL DESIGN

The alternatives will first be developed to a 15-percent (conceptual) level of design development, drafted to a level of detail suitable for public presentation, and accompanied by Class 5 (“screening level”) cost estimates. M&N will present these to the Borough for consideration, and proposes to return to Haines for a second Public meeting to gather feedback on the alternatives development. The goal will be to either affirm or redirect the design development effort. A process similar to that of the public intake effort may be utilized.

TIER 2: PRELIMINARY DESIGN

All of the alternatives will be advanced from a 15-percent (conceptual) to a 35-percent (preliminary) level of design development, and delivered with Class 4 (“budget-level”) cost estimates, in a written report summarizing the project effort. A recommendation will be provided regarding the most practicable alternative, from a technical/utility, schedule and cost/value standpoint. At the Borough’s discretion, a final public workshop may be scheduled for the purpose of presenting a broad overview of the results of the alternatives analysis effort, and recommended design solution, informing and soliciting feedback from stakeholders and the public-at-large.

DESIGN APPROACH

M&N will execute the alternatives analysis in three (3) distinct conceptual development tracks. We understand the importance of having Alaska work managed and executed by Alaskan engineers, who are familiar with marine project work in Southeast Alaska, with its unique design challenges (e.g., high tidal ranges, currents and in the case of Haines, significant ongoing effects of glacial rebound). Accordingly, this alternatives analysis will be carefully managed and executed by members of M&N’s Anchorage office staff.

The team will develop all design alternatives according to a uniform technical basis of design (BOD), which we will develop simultaneously with the public intake process, and ratified by M&N’s design quality oversight agent. Key to the development of the BOD will be the expertise of the team’s geotechnical engineering consultant, Kyle Brennan of Shannon & Wilson (S&W), and the team’s heavy civil marine construction expert Jason Davis of Turnagain Marine Construction (TMC).

Leaning on decades of technical and construction experience in geotechnical engineering and heavy civil marine construction, respectively, Kyle and Jason will provide key technical opinions to the project engineers as they develop not the BOD and all three design alternatives. Additionally, Kyle will apply S&W’s vast organizational experience in Alaska geotechnical engineering, including past project experience specific at this facility.

Technical Design Solutions

TRACK 1: PRESERVATION OF EXISTING DOCK

One of the design alternative concepts will focus on preserving the existing column of soil presently encapsulated by the existing dock framing. *This design solution was suggested as an alternative by M&N during Haines Port Development Planning Session*, hosted by the Haines Borough in December 2014. (Please refer to the

memorandum dated May 22, 2015, produced at the request of the Borough Manager at the time; appended to this proposal.)

As alluded to in the above-referenced memo, the chief deficiency of the existing dock is the deterioration of the seaward face of the dock; particularly the cellular sheet pile interlocks. The balance of the dock is comprised of a well-compacted and historically stable column of soil, which could serve as a suitable work surface not only during the remediation of the dock, but for continued service well into the future.

Additionally, the *preservation of the existing bulkhead might provide a tremendous potential for savings* over design alternatives requiring the removal of both existing steel sheet pile and existing bulkhead backfill soils.

TRACK 2: WHOLESALE REMOVAL AND REPLACEMENT

Another design alternative concept will focus on the complete demolition and replacement of the existing Lutak Industrial Port facility. Whether in-kind replacement (i.e., closed-cell cellular structure) or another type of fixed dock is contemplated, this design solution will provide for a footprint essentially identical to that of the existing facility, with existing appurtenances located accordingly. The following two sub-alternatives are presented for consideration:

A. In-Kind Replacement

The removal and in-kind replacement of the existing multiple-closed-cell steel sheet pile cofferdam structure would be a practicable approach to the dock replacement from a purely technical standpoint. After all, this proven construction approach yielded a structure which has provided over half a century of reliable service in Haines, in the present Lutak Dock. *Traditional closed-cell configurations have proven to be preferable, in some Alaskan locations, over other forms of cellular steel sheet pile construction; such as non-closed-cell configurations.*

Consider, for instance the ongoing experience of the Port of Anchorage. Here, a port expansion project utilizing an non-closed-cell configuration was abandoned in place, only partially constructed; having failed to achieve the desired structural capacity for design loads on the facility. Consider also that the seismicity at the Haines Lutak Dock may prove to be as much as three-quarters that of Anchorage. It would not be an exaggeration to classify the Lutak Dock site as having a significant potential for high seismic forces. *Great care is needed in selecting the right solution.*

B. Pile-Supported Dock Alternative

A prior consultant to the Haines Borough proposed the use of a fixed, pile-supported dock as the best design solution for a wholesale dock replacement project. Certainly, this is a more attractive alternative, from the standpoint that soil removed from the site would not have to be returned and reconsolidated, as it would in any sort of sheet pile bulkhead replacement. However, given the considerable amount of fill that would be generated, disposal of such material would be a cost and concern.

In either scenario, the strength of the removal-and-replacement approach is that *it provides an opportunity to implement any number of conventionally-proven design solutions.*

TRACK 3: INNOVATION IN DESIGN

Even with sound oversight and development of stakeholder ideas, it so often happens that these are the only design solutions explored. On the other hand, *the crafting of an “independent” design solution, free of the constraints of such starting positions, can be a powerful tool in the alternatives analysis process.* These ideas present not only a fresh perspective, but also *a rational test of the relative value of stakeholders’ notions, within a larger marketplace of “good ideas”.*

The third conceptual alternative for the Lutak Dock will involve a technical design solution significantly distinctive in comparison to the above mandated design solutions. Based on our experience brainstorming with local stakeholders over the past two years, M&N has already developed what we believe will be a uniquely independent

concept. As with the mandated design solution tracks, this innovative design solution will address concerns about initial cost of construction, construction schedule and life cycle maintenance costs. Initial indicators suggest this solution could provide a lifecycle savings of 20- to 30-percent over other alternatives previously discussed with the Borough, and with no loss of utility or service life. This innovative alternative will also consider desirable and achievable project features such as potential for immediate multi-use, and capacity for future adaptation and/or expansion. *Once under contract, the M&N Team will outline this concept for the Borough and present it for consideration during the initial public intake process.*

Potential Project Challenges

The Haines Lutak Dock project will not be without challenges, regardless of the design solutions developed and eventually selected. These include issues such as integration of the new project with the neighboring occupants at the dock facility; in particular the new Alaska Marine Highway System (AMHS) terminal near the east end of the existing Lutak Dock. Any successful design solution will facilitate safe ongoing ferry operations. This will be achieved by close coordination with AMHS during the design alternatives phase, and through *consideration of all potential hazards to safe operations during the construction phase by TMC, our marine construction subconsultant.*

Another important concern pertains to the ongoing use of the dock as a means of transmitting goods and material into and out of the community of Haines, during the construction phase. This is another challenging issue where TMC's heavy civil marine construction expertise will be key to success. *Mitigation strategies to limiting disruption to dock operations will include evaluating each proposed technical design solution from a perspective of construction phasing.*

Finally, and perhaps most importantly, the constraint of project funding will need to be realistically explored. While the technical design solutions will represent the immediate fruits of this initial project, *it will be necessary, and pragmatic to take a longer view of capital, as well as operational expenses especially at this early stage.*

Design Quality Oversight, Constructability and Cost Estimating

The development of the technical design solutions will proceed under the design quality oversight of Gerry Houlahan, a Moffatt & Nichol senior engineer with decades of marine project design experience. *Gerry will provide technical review of all design solutions and will offer advice and insight on refinements that might reduce cost or schedule, and/or improve utility and service life.* In this latter capacity, Gerry will work closely with our team's constructability expert, Jason Davis of TMC.

M&N has engaged the services of TMC as an expert Alaska marine construction consultant. Jason is the President of TMC, a heavy civil construction firm specializing in marine in-water and near-shore construction. Jason has been responsible for executing a substantial range of successful design-bid-build and design-build projects throughout all Southcentral and Southeast Alaska. These include the recently-completed new cruise ship terminal at Icy Strait Point in Hoonah, as well as the recent emergency response repairs to the City of Ketchikan's Berth 3, following the severe allision of the Celebrity Infinity: both projects executed in close relationship to M&N. The latter of these projects was executed in roughly three-quarters of the scheduled time, without any change orders, resulting in the early reopening of that economically important berth.

Bringing to bear his many years of experience constructing marine projects in Alaska, Jason will provide real-time constructability oversight for the design alternatives; advising on everything from general structural arrangement, to material types, to installation methods and construction schedule impacts. *Jason will help the M&N Team develop design solutions that are feasible, constructible, within the Borough's stated budget, and with a level of utility and serviceability that make them appropriate for further development.* Jason will provide support to our team's construction cost estimating expert Jim Schoonmaker of M&N.

With a long career in estimating costs for heavy civil construction projects in marine environments, Jim will formulate opinions of probable construction costs (OPCC's) for all three technical design tracks. These estimates will be completed first to within a Class 5 (as defined by AACE International) level of confidence, appropriate to a concept-level screening effort. Later estimates will be updated to a Class 4 level of confidence, which is appropriate for long-range budgetary planning. Jim's efforts will be grounded, in part on a broad store of very recent construction cost estimating benchmarks specific to marine work in the Alaska market including at the Port of Anchorage. Utilizing his recent work in Alaska, *Jim's extensive past experience on project types similar to the very tracks being considered here will add tremendous value to this conceptual development effort.*

PROJECT TEAM ORGANIZATION, BUDGET, AND SCHEDULE ADHERENCE

M&N's Project Manager, Paul Wallis, is a seasoned professional who excels in formulating and managing project teams, helping them achieve their best work together, for the benefit of our clients and their projects. Paul's potential for success at this is further enhanced by the technically strong, highly committed team of professionals we have assembled for this project. The following distinct project tools, protocols and procedures will be utilized to tangibly measure progress and keep the team organized, focused, on-schedule and on-budget.

M&N's work will begin with a clear *Project Management Plan (PMP)* identifying key individuals with the Borough, the project team, and any project stakeholders the Borough identifies as having special roles in steering the project. Routine internal (project team) and external (project team and Borough) meetings will be scheduled, and participation and reporting responsibilities will be assigned to every team member. Working closely with the Borough, M&N will develop a master project schedule, highlighting all project deliverables, special meetings, presentations and workshops, and key project milestones that meet the end goal of finishing the design alternatives analysis by the agreed-upon completion date.

The dissemination of project responsibilities is also critical, so that the work does not "bottleneck" with the Project Manager. As such, staff assigned to this project team, as well as our subconsultant partners will signify their buy-in at the time of drafting this master schedule, and will subsequently be held accountable for their roles and performance. The schedule and overall PMP will be maintained in its baseline form to measure overall schedule adherence, and it will be updated and maintained as needed addressing changes that may be encountered throughout the project. Given the narrow scope, and limited goals of this phase of the work, all team members will be directly accountable to Paul Wallis, M&N's Project Manager (PM), who will in turn serve as the Borough's primary technical point of contact. Serving as the project's Principal-in-Charge (PIC), Shaun McFarlane will offer technical, strategic and problem solving advice to Paul; securing the availability of other M&N resources from outside the project team, should the need arise.

Clear communication is needed within the project team and between the project team and Borough, throughout the project. M&N will schedule periodic (typically weekly) internal team teleconferences and separate client meetings, led by the PM and attended by the PIC and key technical team members. *Our state-of-the-art SmartBoard™ technology may be used by anyone with a computer to remotely attend project meetings, share screens and participate in collaborative markups and scenario analysis in real-time.* Meetings will begin on-time, and will not be allowed to exceed the appointed duration. Any technical discussion which does not serve the immediate interests of the entire technical team will be executed by sidebar meetings, on an ad-hoc basis, among those necessary to resolve the discussion. Additionally, *M&N uses NewForma Project Center™ company-wide as a tool for file transfer, management, tracking and communication of action items, project reports, documents, deliverables, correspondence and submittals.*

4. CAPACITY OF THE FIRM

PROJECT SCHEDULE

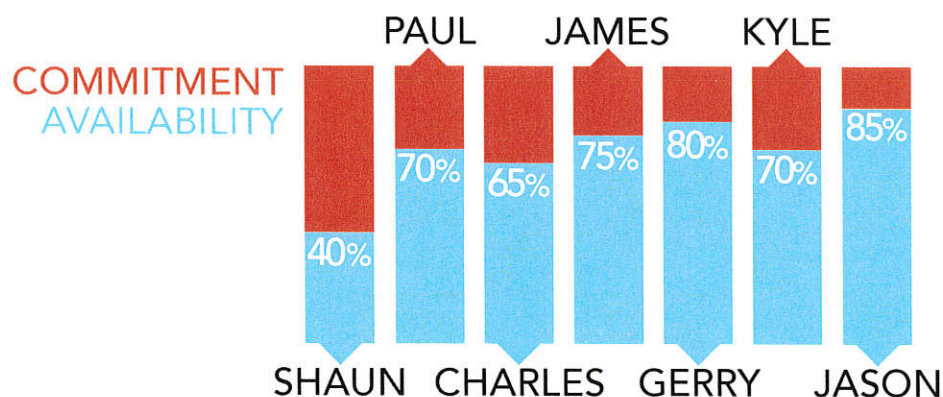
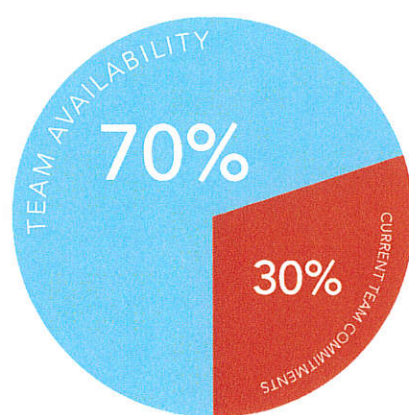
M&N will work with the Borough to develop an achievable project schedule, and will thereafter meet individual task deadlines critical to meeting the project's completion date. Paul Wallis will apply a regimented work plan founded on sequential logical activities and tasks, each with a realistic schedule for completion. A proposed project schedule is provided in the Appendix.

In order to ensure the highest probability of success, Paul's proven approach includes the following steps predicated on schedule adherence, and the appropriate utilizing of staff:

1. **Identify each task** that must be performed to complete the overall project goals and objectives, and the deliverables for each task.
2. **Establish reasonable and achievable duration** for the task, by clearly identifying start and finish dates.
3. **Identify capable and available staff** required to complete the task and communicate up-front and throughout the project to make sure they understand their responsibilities and expectations.
4. **Closely track progress of task completion** to assure work is proceeding as planned, and where necessary identify constraining issues and resolve them pro-actively before they jeopardize project completion.
5. **As challenges occur, address them immediately**, efficiently and communicate honestly to the Borough.

Our initial sense is that, based on the approach outlined herein and with maximum cooperation of the Borough (in the form of timely direction and responses), this project could be executed within a period of approximately sixteen (16) weeks, from the date of the notice-to-proceed (NTP).

FIRM CAPACITY



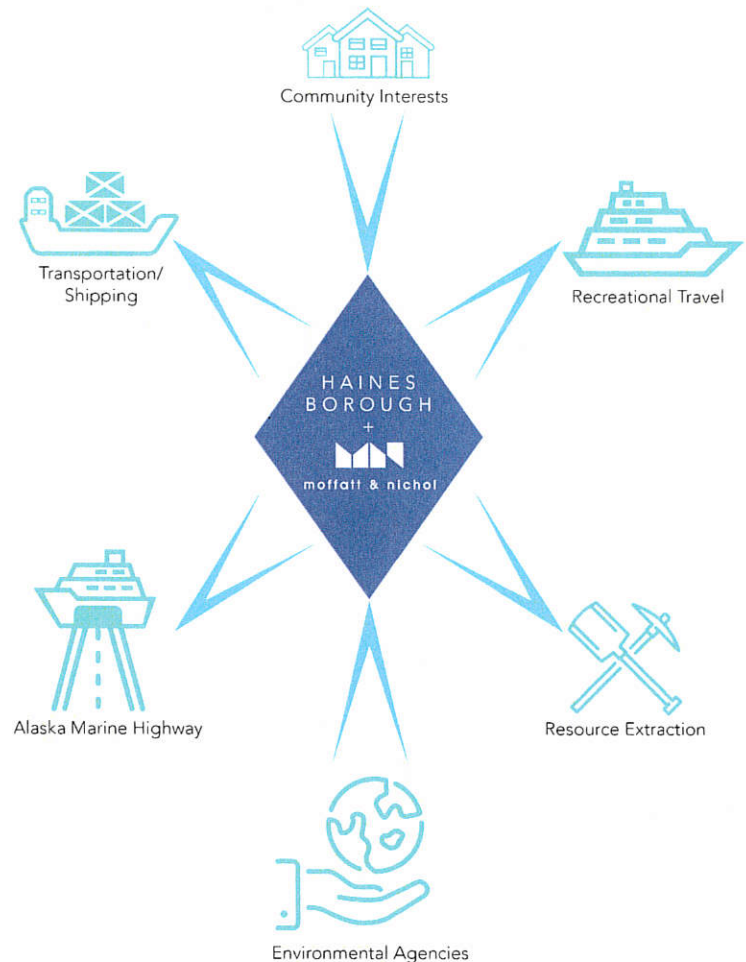
This team has the availability to focus on this project and provide timely high-quality deliverables.

5. EXPERIENCE WITH PUBLIC MEETINGS AND USER GROUPS

Given the Borough's diverse population, and the keen interest of its sometimes-competing stakeholder groups in the development of Lutak Dock, we anticipate an animated discussion of the multiple (and sometimes conflicting) needs and desires of project stakeholders. The Borough has been wise in anticipating this challenge. True consensus can be an elusive target; especially when even the "fairest" concession seems too distant from any given stakeholder's initial ideas and desires for the project. But even in the absence of full consensus, where thoughtful concession is most likely the best-case scenario, a respectful approach to consensus-building can be both powerful and effective. Successful consensus building is based on three main tenets: **(1) telling the truth; (2) communicating it consistently, candidly and objectively, irrespective of the audience; and (3) actively listening and considering the input and feedback of the community and its stakeholders.**

If the project's stakeholders are genuinely regarded, and thus treated as respected partners in the project – each with unique backgrounds, perspectives and enthusiasm to contribute in the project's success – then, and only then can such an approach be successful.

The perceptions and starting positions of individuals can be very challenging to influence, and can create a formidable impediment to achieving consensus across the entire spectrum of stakeholders. Often, addressing the concerns of these individuals within the context of the group they are supposed to represent – for instance, by including individuals they respect from within their own user group – can be effective in helping to distinguish between overall needs of the group and the closely-held position of the individual "spokesperson". This approach can diffuse hardened positions and foster a collaborative spirit, with minimal conflict.



We will proactively engage in an open and honest dialogue with the Haines Borough and the public-at-large, to discern your needs and desires through our Principal-in Charge, Shaun McFarlane, who will lead public Outreach for this project.

APPENDIX – RESUMES

APPENDIX - RESUMES

PAUL WALLIS, PE, SE

Project Manager and Lead Engineer (Moffatt & Nichol)

Mr. Wallis has 18 years of diversified experience in structural engineering, department management, project management, and design team management. He has a working knowledge of both state-of-the-art and "legacy" model building codes and standards to support rehabilitation work on existing structures. Paul brings nearly two decades of design engineering and management for marine and other structures including: ramps, floats, piers, wharves, docks, trestles and bridges.

Relevant Experience

Lutak Dock Workshop, Haines Borough, AK. Paul participated in, and reported on, a workshop held in Haines, Alaska, to discuss the current condition, and future of the existing Lutak Dock. The workshop included attendees who were specifically invited by the City of Haines, and who represented a cross section of community stakeholders and other interested parties. The workshop was executed in roundtable fashion, which included both all-inclusive sessions, as well as breakout sessions of smaller groups.

The main purposes of the workshop appeared to include (a) building a consensus among stakeholders, (b) generating preliminary action items regarding the disposition of the existing dock based on current information, and (c) establishing a working group or committee which would advance the efforts of the larger workshop through future meetings.

New Deep-Water Multi-Use Dock Facility, Sitka, Alaska. Project manager and lead structural engineer for design of new multi-use dock facility as part of a planned industrial park expansion. Project to date has included an alternatives analysis to evaluate most cost-effective dock design solution which would meet the needs of the community. Alternatives considered included fixed, pile-supported type, retained-soil bulkhead type, and floating dock.

Existing City Dock Condition Assessment, Aleknagik, AK. Project manager and senior structural for evaluation of existing city L-dock facility. Project included onsite top-side and skiff-mounted observation and inspection of existing dock structure utilizing underwater video surveillance and ultrasonic measurements. Project deliverable included draft detailed condition report, with recommendations for remedial action; based on preliminary structural assessment, including limited lateral force-resisting system checks for seismic and lake ice effects. Final report included opinion of probable construction cost (OPCC) in support of solicitation for design and construction services to execute remedial measures and separate operations and maintenance recommendations.

Seldovia Small Boat Harbor Improvements, Seldovia, AK. Technical advisor to the assistant project manager, executing discrete design quality control (QC) and submittal review tasks, as assigned for a project including the replacement of floats, new electrical, and lighting and water service for Seldovia Harbor. Project involves socketing piles into bedrock in an environment of significant marine habitat in the presence of threatened species Beluga Whale and Steller's Eider.

REGISTRATION:

Alaska, Civil, 11489, 2006

Alaska, Structural, 13420, 2012

Hawaii, Structural, 14815, 2012

Idaho, Civil, Structural, 13362, 2008

Minnesota, Structural, 42038, 2002

North Dakota, Structural, PE-5300, 2004

Oregon, Civil, 81861, 2008

South Dakota, Civil, 8814, 2006

Washington, Civil, 44920, 2008

EDUCATION:

BS Civil Engineering,
University of Alaska,
Fairbanks, 1997

CERTIFICATIONS:

Model Law Structural
Engineer (MLSE)

SHAUN MCFARLANE, PE

Public Outreach/Principal in Charge (Moffatt & Nichol)

Shaun has 27 years of diversified experience in waterfront engineering. His responsibilities have included national and international marine and coastal projects for private and public industries, and all levels of government agencies. His project experience includes floats, piers, wharves, bulkheads, breakwaters, recreational, fishing and mixed-use harbors, shoreline protection, and marine dredging. He has managed all aspects of these projects, including site selection and conceptual development, design, permitting, mitigation, environmental assessment, bid document preparation and evaluation, community and stakeholder involvement, and construction management.

Relevant Experience

Lutak Dock Restoration, Haines, AK. Lead waterfront engineer and permit specialist for repairs and dredging of a 1,100-ft long deep water steel sheet pile bulkhead and RO/RO facility. The dock services the Alaska Marine Highway, container vessels and bulk material barges.

Ore Dock Inspection and Assessment, Skagway, AK. Project manager for the topside, under-pier and underwater inspection of an aging concrete and timber multi-purpose dock and conveyor system used by the Municipality of Skagway for ore transshipment and cruise vessel moorage. The purpose of the evaluation was to determine repairs prioritized to near-, mid-and long-term horizons, and to estimate the residual life and “as-is” residual value of the structure, for use in possible purchase and negotiations. The work was completed on schedule and approximately 15-percent under budget during a challenging spring tide cycle while scheduling incremental facility inspection around the busy cruise ship season in Skagway.

Planning and Design of Port Improvements, Berths I, II and III, Ketchikan, Alaska. Project manager leading planning, public input and design of improvements to Berths I, II and III cruise terminal facilities for the City of Ketchikan. Work entails detailed topside, under-pier and underwater inspection of existing facilities with prioritized recommendations for repair and rehabilitation; a market study assessing future trends in cruise vessels for Southeast Alaska; recommended capital improvements to berth and supporting uplands for the next 10-15 years; and design, procurement and construction support of projects undertaken within this planning horizon.

ANB Harbor Float Replacement, Sitka, AK. Project manager for the planning, design, permitting, bid and construction assistance for replacement of approximately 23,000 square feet of timber floats in an aging fishing harbor. Special project challenges include shallow bedrock outcropping necessitating rock removal and drilled, socketed piling. The project was bid in two stages with an aggressive timeline: the initial “procurement contract” allowing float manufacturers to utilize their own proprietary systems, resulting in quality products with cost savings to the City, with a subsequent “installation contract” involving including installation of the float system and utilities. Phased construction allows for a compressed schedule with significant cost savings due to design efficiencies and the reduction in contractor markup over traditional design-bid-build contracts. *The project was completed in early 2014, more than \$1.0M under its \$8.5M budget.*

REGISTRATION:

AK license #10086, WA, OR, HI, Ontario, BC, Yukon

EDUCATION:

MBA, University of Washington

ME, Ocean Engineering, Texas A&M University

BASc, Civil Engineering, University of Waterloo, Ontario

CERTIFICATIONS:

Associate Value Engineer, SAVE International

Certified Bridge Inspector, ADOT&PF, WSDOT

GERRY HOULAHAN, PE

Design Quality Oversight (Moffatt & Nichol)

Since joining Moffatt & Nichol in 1998, Mr. Houlahan has provided structural and civil engineering for a variety of new and repair/replacement projects for waterfront structures with a particular focus on large, heavy construction. Mr. Houlahan has more than thirty-nine years of experience in project management, planning, structural analysis, assessment, design, construction document preparation, post-construction-award services, and field engineering for onshore, coastal, and offshore structures and facilities. This experience also includes structure fabrication and installation. He provides particular expertise with large and deep foundations having competed detailed analysis and design for new construction, remedial actions and modification for in-service offshore platforms and other heavy marine structures.

REGISTRATION:

CA, C63167, 2002

EDUCATION:

Diploma of Civil
Engineering, Caulfield
Institute of Technology,
Melbourne, Australia,
1970

Relevant Experience

Whittier Barge-to-Wharf Loading Facility, Alaska. Designed new elastomeric barge fender system for wharf refurbishment. Designed new foundation system and civil/structural works for relocation of a six track drawbridge-tower railcar loading system which was designed for earthquake.

BART Transbay Tube Seismic Retrofit, San Francisco Bay, California Principal-in-charge and senior structural engineer who evaluated the structural capacity for uplift and global strain of the 3.6-mile-long subway 57-segment tube between Oakland and San Francisco, CA, for Bay Area Rapid Transit (BART). Assessed seismic vulnerabilities including liquefaction, developed competing retrofit solutions, and evaluated retrofit measures to mitigate potential failures. He also provided guidance for model development, analysis runs, and technical review of output as well as retrofit alternatives to address structural shortcomings.

San Francisco–Oakland Bay Bridge East Span Replacement, Oakland, California. Directed planning, design, construction document preparation and PCAS services for the foundations supporting this new 2.2-mile-long, 10-lane bridge comprised of twin, structurally-independent five-lane viaduct structures for the eastern portion of the bridge, which transitions to the 10-lane self-anchored suspension bridge as it approaches Yerba Buena Island. The 624-meter-long, self-anchored suspension bridge is supported by three foundations which underlie the Bridge's Tower, West Piers, and East Piers. The Tower foundation was comprised of thirteen 2.5-meter-diameter piles founded in 44-meter-deep drilled rock sockets. Piles were composite steel and concrete in the submerged upper sections and cast reinforced concrete within the 2.2-meter-diam sockets. These were connected to the footing using both grouted and welded connections. The West Pier foundations utilized the footing mass to resist design seismic uplift and overturning forces. To resist rocking, one footing includes four 2.5-meter-diameter piles cast in 10-meter-deep drilled rock sockets. The East Pier foundations utilized sixteen 2.5-meter-diameter driven tubular steel piles that penetrate approximately 90 meters below the bay bottom.

CHARLES BALZARINI, PE

Staff Engineer and CAD Lead (Moffatt & Nichol)

Charles' focus is in civil waterfront development projects. His primary skills include design work on waterfront development and marine structure projects, as well as construction administration and inspection. Additionally, he has experience assessing existing structures, surveying, quality control, permitting, and workplace safety. He holds current certifications in commercial diving, confined space entry, and OSHA Construction Safety.

Relevant Experience

Ketchikan Berth 3 Emergency Repairs. Project engineer and on site-construction inspector for emergency repairs made to Ketchikan's berth 3. The project involved the repair of damages caused by an impact from the cruise vessel Celebrity Infinity. The project was completed less than one month after the incident thanks to rapid engineering and construction response, and fluent collaboration during construction.

ANB Harbor Float Replacement, Sitka, AK. Project engineer and construction inspector for the planning, design, permitting, bid and construction assistance for replacement of approximately 23,000 square feet of timber floats in an aging fishing harbor. The float system featured new timber floats fully furnished with potable water, fire protection, shore power (30A/50A), lighting, and security cameras. A re-built approach dock with an 80-foot-long, ADA-compliant aluminum gangway will provide improved access to the new floats. Special project challenges include shallow bedrock outcropping necessitating dredging and pile socketing. The project was bid in two stages with an aggressive timeline: the 'procurement stage' allowed for float manufacturers to utilize their own proprietary systems, resulting in a quality product. The 'installation stage' involved actual project construction, including installation of the float system and utilities. Phased construction provides for a compressed schedule and resulted in a cost savings from design efficiencies and reduction in contractor markup over traditional contracts.

Icy Strait Point Berthing Facility, Hoonah, Alaska. Deputy Project Manager and designer for the design team engaged on the \$23 Million Design-Build project, under Turnagain Marine Construction, of a deep water berthing and vehicle provisioning facility for passenger cruise vessels landing at an exposed, undeveloped location approximately 1.5-miles outside of downtown Hoonah. The work project entails the design and construction of: a floating 400-foot by 50-foot steel pontoon-supported dock; a series of reaction and mooring dolphins; a 600-foot long trestle and transfer span; catwalks; and miscellaneous structures. Working under an aggressive schedule, the project was substantially completed in early 2016.

Hydaburg Small Boat Harbor Floats, Hydaburg, AK. Project designer for Replacement of old concrete floats with new modern timber floats specifically designed for a high wave environment. The pilings for this project are designed to be drilled and socketed into shallow bedrock. The project also included the replacement and upgrading of the gangway, electrical and lighting, water and fire suppression systems. Responsibilities included Float and utility design, the design of the new pile foundation including a lateral wind load analysis.

REGISTRATION:

AK license #13854, HI

EDUCATION:

BS, Civil Engineering,
University of Alaska,
Anchorage

Graduate, Minnesota
Commercial Diver Training
Center

JASON DAVIS

Constructability Consultant (TMC)

Jason's management role on increasingly complex marine and heavy civil construction projects has led him throughout remote Alaska. His experience provides a unique cross-section of skills required to successfully delivery logistically challenging projects. Mr. Davis has an especially in depth knowledge of the construction of marine structures. His experience enables successful delivery of time and environmentally sensitive projects in a safe, efficient and responsible manner.

REGISTRATION:

NA

EDUCATION:

BS, Civil Engineering,
University of Alaska,
Anchorage

Relevant Experience

Projects Performed with Turnagain Marine Construction Corporation (2014-Present)

- ▶ Seward BCS Dock Replacement, Seward, AK
- ▶ Icy Point Straight Cruise Ship Facility, Hoonah, AK
- ▶ City of Homer Ferry Dock Rehabilitation – Homer, AK
- ▶ Robert Storrs Small Boat Harbor – C Float Replacement, Unalaska, AK
- ▶ City of Ouzinkie Municipal Dock – Phase IV Project, Ouzinkie, AK
- ▶ Akutan City Dock Improvements, Akutan, AK
- ▶ Cold Bay Dock Rehabilitation, Cold Bay, AK
- ▶ Perryville Vessel Launch Facility, USACE Alaska District, Perryville, AK

Projects Performed with Pacific Pile & Marine (2010-2014)

- ▶ Furie Monopod, Cook Inlet, AK
- ▶ Eklutna Power, Northern Power line Constructors, Palmer, AK.
- ▶ Port Lions New Ferry Terminal, Kodiak Island, AK.
- ▶ Port of Nome Inner Harbor High Ramp & Float Phasing, City of Nome, Nome, AK
- ▶ Hydaburg Small Boat Harbor Renovations, City of Hydaburg, Hydaburg, AK
- ▶ Robert E. Galovin Small Boat Harbor, City of Sand Point, Sand Point, AK
- ▶ Skagway Railroad Dock Cruise Ship Floating Berth, White Pass Railroad, Skagway, AK --
- ▶ Statter Harbor Moorage Improvements, City Borough of Juneau, Juneau, AK
- ▶ Christy Lee Salvation, Global Diving & Salvage Inc, Cook Inlet, AK
- ▶ Nikiski Combined Cycle Outfall, Pruhs Construction, Cook Inlet, AK.
- ▶ Cook Inlet Tug and Barge, Cook Inlet, AK
- ▶ Private Client, Former Chevron Kenai Facility, Chevron Environmental Management Co., Nikiski, AK
- ▶ City of Unalaska, UMC Fender Repair Project
- ▶ City of Seward, Seward AK SMC Deep Water Dolphins
- ▶ Carl E. Moses Breakwater, U.S. Army Corps of Engineers, Dutch Harbor, AK
- ▶ Port Lions Small Boat Harbor, Native Village of Port Lions, Port Lions, AK
- ▶ Old Harbor New City Dock, City of Old Harbor, Old Harbor, AK
- ▶ Fire Island Wind Power Distribution, Northern Power Line Erectors, Anchorage, AK.
- ▶ Design-Build Services, Swift Reservoir Trestle Install, Natt McDougal Co., Cougar, WA
- ▶ Design-Build Svcs, Carl E. Moses Commercial Small Boat Harbor, City of Unalaska, Dutch Harbor

KYLE BRENNAN, PE

Geotechnical Engineer (Shannon & Wilson, Inc.)

Kyle Brennan has 14 years' experience performing geological and geotechnical engineering related work on projects throughout the State of Alaska. Since joining Shannon & Wilson, Kyle has advanced to his current position as manager of Shannon & Wilson's Anchorage Geotechnical Group. Kyle also serves on the Municipality of Anchorage Geotechnical Advisory Commission.

Kyle is well versed in providing practical geotechnical solutions for shallow and deep foundations, retaining walls, bulkhead structures, soil and rock slope stability, as well as cut/embankment development over a wide variety of soil and rock conditions. He also has strong experience in finding and evaluating soil and rock construction materials resources. His varied experience across the State of Alaska has also given him the ability to provide practical and innovative solutions to many of the geotechnical engineering design challenges that can be found in Alaska such as permafrost soils, seismicity, and remote locations with limited resources.

REGISTRATION:

AK license #11122

EDUCATION:

MS, Geological Engineering, University of Alaska, Fairbanks

BS, Geological Engineering, University of Alaska, Fairbanks

Relevant Experience

Lutak Dock Rehabilitation, Haines, AK. Project manager for the geotechnical study associated with the Lutak Dock Rehabilitation in Haines, Alaska. The old dock structure consisted of a cofferdam composed of connected closed cells. Field work included conducting borings behind and in front of the existing dock face. Two borings behind the dock face were advanced close to the walls of two of the closed cells and fitted with 2-inch PVC to allow for a geophysical contractor to use magnetic methods in an attempt to determine the embedment of the cells' sheet piles. A bottom and subbottom geophysical survey was also conducted in front of the dock to determine sediment and bedrock depths. Geotechnical recommendations were provided for the proposed improvements including new pipe, sheet, and h-pile designs, dredging recommendations, dock resurfacing (structural fill), and foundation recommendations for a new fender system.

DH Ports Dock and Cold Storage Facility, Unalaska, AK. Project manager for the design and construction of a new dock and cold storage facility in Unalaska, Alaska. The project included the demolition of existing timber pile supported dock and cold storage facilities and construction of a new 1,200 foot-long open-cell sheet pile bulkhead and a 143,000 square foot cold storage warehouse. A rock quarry adjacent to the bulkhead site was expanded (with a final rock face approximately 1,500 feet long and up to 120 feet high) fill for the project.

Shiplift and Drydock Facility Upgrades, Ketchikan, AK. Project manager and provided engineering support for an expansion and upgrade project for the Ketchikan Shiplift upgrade project. The project initially involved review of existing subsurface data and formulation of preliminary geotechnical engineering recommendations using that data. Improvements to the facility include an extension of the closed cell cofferdam dock structure, increased dredging around existing sheet pile cells, and the construction of an offshore pile grid for berthing support.

Gravina Access Project Design Build Support, Ketchikan, AK. Project manager and provided engineering support during the design build phase of the Gravina Access Project in Ketchikan, Alaska. This phase of the project included conducting detailed geotechnical explorations along the entire road and bridge alignment. During this phase, on and off shore explorations were conducted and the exploration program conformed to ADOT and AASHTO standards. Kyle coordinated and initiated the exploration program and then continued providing oversight through the completion of drilling of approximately 100 borings.

JAMES SCHOONMAKER (M&N)

Mr. Schoonmaker is a marine construction specialist with more than 33 years of experience in construction management and construction estimating of numerous heavy civil marine waterfront facilities located throughout the Eastern Seaboard, Gulf Coast of the United States, Central America, and the Caribbean.

He has been directly involved with onsite construction activities, where he has acted as the project engineer and onsite management activities as a cost engineer. He worked as a chief estimator for a major maritime constructor for 10 years and, for the last 5 years, has provided constructability assessments and costing used in the design

engineering industry. He has been responsible for estimation projects up to \$150 million and concept pricing for projects up to \$750 million. Typical projects have included bulkheads, marginal wharves, marine discharge and intake outfalls, bridges, mechanical dredging, and shoreline protections. Proposal types included joint ventures, design-build, fixed price, FIDIC (International Federation of Consulting Engineers), re-measurable, and negotiated bids.

REGISTRATION:

NA

EDUCATION:

BS Building Construction,
University of Florida, 1979

Relevant Experience

Saint John Extension Marine Terminal Front-End Engineering and Design (FEED), Alberta, Calgary. Construction cost estimator providing level 3 cost estimate and level 2 construction schedule for a project involving an offshore marine terminal to berth two VLCC vessels (Very Large Crude Carriers) for exporting oil. The berths are located in the open ocean and exposed to significant tidal fluctuations necessitating unique and very specialized techniques to construct.

Eastern Mainline Marine Terminal Front-End Engineering and Design (FEED), Quebec City, Quebec.

Construction cost estimator providing level 3 cost estimate and level 2 construction schedule for a project involving an offshore marine terminal to berth two Suezmax vessels and supporting foreshore infrastructure for exporting oil. The project is sited in an environmentally sensitive region with very restrictive working windows. The site also has challenging geotechnical and seasonal ice conditions that create significant constructability issues.

Enbridge Northern Gateway Terminal Front-End Engineering and Design (FEED), Kitimat, British Columbia, Canada. Construction/cost estimator for project involving marine terminal to berth two VLCC vessels (Very Large Crude Carriers) for exporting oil.

Port of Batumi Final Design Documentation, Batumi, Republic of Georgia. Cost estimator for project involving replacement of an old marginal wharf with a modern cruise berth. The challenge is constructing a new substructure while maintaining the existing rock slope protection to continually dissipate wave energy on the entrance channel.

Burnside Coal Terminal Master Planning, Environmental Permitting, and Engineering Services, Darrow, LA.

Construction/cost estimator for project involving the master planning, environmental permitting, and engineering services to assist with the redevelopment of the Burnside Terminal into a state-of-the-art major bulk terminal for coal, bauxite, and alumina.

The Wharf at the Southwest Waterfront, Washington, D.C. Construction/cost estimator for the waterside aspects a 2 billion dollar redevelopment. The project includes the replacement of over a mile of seawall, a 90 slip private marina, a 300 slip public marina, and five major public access/commercial operation piers with water taxi and ferry facilities, dinner cruise boat facilities, human powered craft facilities and the over-water National Marine Heritage Museum.

APPENDIX – LUTAK DOCK MEMORANDUM

MEMORANDUM

Project No.: 8723 –Lutak Dock Workshop

Date: May 22, 2015

To: Mr. David Sosa; Manager, Borough of Haines, Alaska

From: Paul Wallis, PE, SE, MLSE

Copy: Bill Mandeville; Director, Community and Economic Development,
Borough of Haines; Shaun McFarlane, PE (M&N); Charles Balzarini, PE
(M&N)

Subject: Lutak Dock Workshop Summary

Mr. Sosa:

This memorandum is in response to your request for feedback regarding the Lutak Dock workshop; which I attended at the Borough's request. Please feel free to contact us at your convenience if you should have any questions or concerns regarding this information.

BACKGROUND:

From the third to the fourth of December, 2014, a workshop was held in Haines, Alaska, to discuss the current condition, and future of the existing Lutak Dock. The workshop included attendees who were specifically invited by the City of Haines, and who represented a cross section of community stakeholders and other interested parties. The workshop was executed in roundtable fashion, which included both all-inclusive sessions, as well as breakout sessions of smaller groups.

The main purposes of the workshop appeared to include (a) building a consensus among stakeholders, (b) generating preliminary action items regarding the disposition of the existing dock based on current information, and (c) establishing a working group or committee which would advance the efforts of the larger workshop through future meetings.

Item (b), above included a non-technical presentation by Mr. Dick Somerville, PE, of PND Engineers, Inc. During this presentation, Mr. Somerville speculated on the probably cost of alternatives proffered by PND for the wholesale demolition and replacement of the existing Lutak Dock. Mr. Somerville also provided a

number of “preliminary design” or conceptual drawings, which were exhibited on the walls around the meeting place.

As a consulting structural engineer specializing in the design of marine facilities, I was asked to attend the workshop in a more or less observational capacity. I was, however invited to reflect on information provided and on discussion, during the course of the workshop.

EXISTING DOCK:

Background and Condition.

The existing Lutak dock was originally designed and constructed by the United States Army Corps of Engineers (USACE) in 1953. Comprised of closed and back-filled cellular sheet pile cofferdam construction, the dock has exceeded the intended design life of its present configuration. Over the past several years there have been instances of localized failures of certain areas of the sheet pile; most probably due to effects of corrosion due to seawater and weather. In at least one instance a structural remedy was implemented which seems to have been only marginally effective in preventing additional failures. Although the facility does not appear to be in imminent danger of global failure (i.e. structural collapse) at this time, there is concern that continued use of the dock facility will accelerate the rate of degradation. It is felt that the future of the existing dock may be safely measured in some years less than a decade; perhaps only a few years time.

Recent Investigatory Efforts.

In May of 2014, Echelon Engineering, Inc. was retained by PND to execute an underwater inspection and assessment of the Lutak Dock. Echelon’s report was delivered on 5/23/14, to the attention of Mr. Somerville. The overall condition of the dock was determined to be fair to poor; considering the main cells and the closure cells, respectively. Wall losses were estimated at between 37 and 38 percent, approximately.

In October of 2014, PND Engineers, Inc. submitted a “structural assessment” report, further detailing the condition as described in the Echelon report noted above. Some level of structural analysis was undertaken by PND, and the resulting conclusion was that the “full replacement” of the dock should begin “as soon as credibly possible.”

It is worth noting that PND presented this finding as their “primary recommendation”; although no secondary recommendations were noted in the “Recommendations” section of the report.

WORKSHOP FEEDBACK

During the workshop a number of concerns were discussed among the stakeholders, including economic impacts of interruptions to dock operations, potential construction funding sources, and even additional uses for the dock. The discussion was spirited and inclusive, and a number of very valuable perspectives were proffered. Throughout the workshop, there were two chief considerations from which the discussion never seemed to deviate seriously. The first was the presumption that the design and construction would proceed most efficiently according to a conventional design-bid-build delivery model. The second was that complete demolition and replacement of the dock was, in and of itself the most efficient means of addressing the end of the Lutak dock's existing service life.

Project Delivery Methods.

The principle aim of the traditional design-bid-build model of project delivery is to provide the owner the maximum control over the final design. In the case of the Lutak Dock, for instance, the Borough would engage PND Engineers, Inc. or some similarly qualified consulting engineering firm to prepare a set of construction documents (i.e. plans, specifications, contracts, etc.) which would then be advertised for competitive bid. These might include only a single (or, base bid) design, or they might also include provisions for additive alternates. Qualified contractors would then submit bids for the work, and once awarded and notified to proceed the successful bidder would execute the project according to the as-bid construction documents.

The strength of this approach is obvious: it provides the owner the opportunity to specify all aspects of the construction, from sizes, shapes, quantities and even (within some limitations) certain means and methods of construction. This project delivery method is very well-suited to new construction, particularly at greenfield sites. There are, however drawbacks, particularly for projects involving existing construction or non-traditional facilities.

For projects involving significant demolition scope, in particular design-bid-build can present some difficulties in ensuring the viability of the final design. Contractors are engaged to execute exactly the scope of work presented in the approved construction documents, and any deviations created by unforeseen or other conditions can create not only contractual concerns, but delays for which the owner may find themselves liable. Additionally, prescriptive construction documents such as are part of a design-bid-build delivery rarely include provisions for either construction innovation or cost savings.

One alternative to the traditional design-bid-build project delivery vehicle, which is particularly well-suited to both new and existing construction projects is design-build. Unlike design-bid-build, a design-build project provides competing construction firms with a "bridging document" which (ordinarily) includes only very preliminary conceptual drawings, as well as technical specifications and scope statements which broadly outline the performance requirements of the finished project. The flexibility inherent in this approach provides a number of benefits.

During the competitive bid phase, a design-build contractor (acting as the prime contractor to the owner) engages the services of a group of design professionals to further the “bridging document” design for the purposes of ascertaining a likely cost for the project. After adding contingency and profit as seems prudent to the contractor, the bid is provided along with all qualifying assumptions. Once award has been made, the design is completed by the winning contractor’s design-build team, and the project is constructed according to the accepted design. The principal difference in this project delivery method, as compared to design-bid-build, is that the risk during the construction performance period is shifted largely to the design-build contractor; and away from the owner. Unforeseen conditions, for the most part are issues for the contractor, not the owner. Likewise, any errors to, or omissions in the final construction documents are the liability of the design-build contractor; as the design responsibility is carried by them, not the owner.

As a result, change orders are, by contrast with design-bid-build projects, often far fewer and generally negotiable from a better position, from the perspective of the owner. Also, rather than working from a fixed set of fully complete construction documents, the design-builder has the latitude to develop the design, themselves. As opposed to a rough construction cost estimate provided by an engineer during the design phase of a design-bid-build project, a design-build project provides for real-time pricing of all major and minor elements of construction. While conforming to the principal operational constraint as outlined by the owner, this allows for enormous innovation and even the potential for negotiated post-award savings through value engineering.

From both a risk and a cost standpoint, as well as from a project management standpoint, a properly managed design-build project can provide an owner with benefits far in excess of the more conventional, but much more tightly constrained design-bid-build project delivery model.

Project Design Solution.

Irrespective of project delivery method, the most fundamental concern facing the future of the Lutak Dock is, or ought to be the design solution associated with the issues at hand. During the Lutak Dock workshop, it seemed (essentially) a forgone conclusion that complete demolition and replacement of the dock was the most viable alternative. In fact, multiple iterations of this design solution were presented; while, on the other hand there did not appear to be any consideration given to an alternative that incorporated either renovation or rehabilitation of the existing dock structure.

It should be noted that a large proportion of the anticipated project cost, as presented by Mr. Somerville, appeared to reside in the work of excavating, and then replacing and re-compacting the soil column presently contained in the existing cellular cofferdams. Ostensibly, this would allow PND to design either their “patented” sheet pile dock, or some other bulkhead type structure. Without further investigation, it is uncertain whether such a design solution is well-suited to this particular site. It has been documented that such an approach has not always been successfully implemented; for a variety of possible reasons.

We did not note, during Mr. Somerville's non-technical presentation, any alternatives that had been seriously considered that might incorporate the existing construction into a new dock project. Not only would incorporation of the existing main cells into the new construction eliminate the need to excavate and replace large quantities of backfill, it would leave in place a well-consolidated (i.e. 60-year-old) column of existing soil. It is not insignificant that such consolidation cannot easily be replicated, in the short term by the simple application of mechanical compaction during construction. It would also eliminate the time-consuming (i.e. expensive) proposition of removing and disposing of (literally) tons of existing sheet pile materials.

Likewise, dismissing any alternative short of wholesale demolition and reconstruction of the dock ignores the fact that the primary cells are (according to PND's own report) "less likely" to fail, based on Echelon's above-referenced report. Echelon's own finding of, "... the overall condition of the Main Cells that comprise the Lutak Dock to be fair...", as well as the fact that more than sixty percent of the original material seems still present argues that these cofferdams could provide an excellent platform from which to execute a remedial structural project. And, even if not (technically) incorporated into the lateral force-resisting system of the new dock design, they would certainly provide tremendous redundancy for decades to come.

In short, it is our opinion that an alternatives analysis that considers leaving the preponderance of the existing dock structure (i.e. the "main" or "primary" cells) in place, as an incorporation in the new dock design solution, should be investigated prior to any decision moving toward detailed design or construction.

-----NOTHING FOLLOWS-----

Haines Port Development

Planning Session



December 4th & 5th

At The Chilkat Center Lobby

THE HAINES BOROUGH, LOCAL AND REGIONAL STAKEHOLDERS, AND COMMUNITY REPRESENTATIVES WILL MEET FOR TWO DAYS OF FACILITATED WORKSHOPS AND PLANNING SESSIONS FOR THE FUTURE OF THE LUTAK INDUSTRIAL PORT.

Working together to contribute to the economic vitality of the Upper Lynn Canal, Alaska and the Yukon, well into the future

"Strategic Doing" a two day session facilitated by the U of A Center for Economic Development

**Thursday, December 4th
1pm – 5pm**

Half-day *Introduction to Strategic Doing* training for Borough Assembly Members, staff, and local partners.

All other guests are invited to attend if interested. This session is a must for all individuals and groups who are "on the ground" for this project.

Coffee and snacks provided

**Friday, December 5th
8am – 1pm**

A half day Community Forum and Planning Session - rooted in the *Strategic Doing* process.

This workshop invites local, regional, and statewide participants to an interactive workshop for the future port development in Haines.

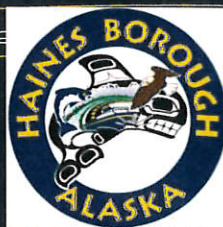
Coffee and snacks provided

The Training and Forum are organized with invited representatives from various government and community organizations meant to give a broad representation of our community. The public is welcome to observe but the sessions are structured for invited attendees.

Please contact the Haines Borough for more information.

Note: A quorum of assembly members may be present, but no action will be taken.

For more information or questions please contact
Leslie Ross at 907-766-2231 or
lross@haines.ak.us



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APPENDIX – DRAFT SCHEDULE

Lutak Dock Design and Development Concepts

APPENDIX – DRAFT SCHEDULE

The M&N Team is proposing a draft schedule for project completion less than 17 weeks after notice to proceed. Assuming a notice to proceed in late September 2016, the project could be completed by Early February 2017 or sooner. Our efforts will be carried out with a general stewardship of City's budget for the planning and design of this important project.

